

Virginia Department of Health

Response to the Department of Planning and Budget's

Economic Impact Analysis

Alternative Onsite Sewage System Regulations (12 VAC 5-613)

November 4, 2010

The agency concurs with the Department of Planning and Budget's (DPB) analysis that the proposed regulations are likely to impose economic costs and produce economic benefits. However, the risk to public health will be lessened from reduced pathogen concentrations as required by the proposed regulations. The agency also sees economic benefit to commercial fisheries, shellfish operations, tourism and recreation, property values, and the regional economies.

In May 1999, the Environmental Protection Agency (EPA) placed most of Virginia's Chesapeake Bay watershed and several of its associated tidal tributaries on the impaired waters list under Section 3039(d) of the Clean Water Act because of excessive nutrient and sediment pollution. The 2000 Chesapeake Bay agreement¹ set a goal of removing these waters from the list of impaired water bodies. The water quality standards were not met as outlined in the 2000 agreement so EPA is in the process of establishing a federal Total Maximum Daily Load (TMDL) or "pollution diet" for the tidal segments of the Chesapeake Bay and its tidal tributaries. The TMDL will establish limits on the amount of nitrogen, phosphorus, and sediment that can enter the Chesapeake Bay from all source sectors, point and non-point. Onsite sewage systems are considered a non-point source sector of nitrogen pollution that contributes about four percent of the total nitrogen to the Chesapeake Bay each year, or about 2.9 million total pounds of nitrogen.

The Watershed Implementation Plan² (WIP), which outlines how Virginia intends to comply with the TMDL, would require Virginia to reduce nitrogen levels below present levels and account for growth of the population. Of the 500,000 to 600,000 onsite sewage systems being used in Virginia's portion of the Chesapeake Bay watershed, mostly at single-family residences, about 10 percent, or 60,000 systems, are estimated to be alternative onsite sewage systems impacted by the proposed regulations. Virginians install about 11,250 new onsite sewage systems on average in the watershed each year, including 1,500 to 2,700 alternative onsite sewage systems. Each new onsite sewage system contributes nitrogen and no technology can presently remove 100 percent of the nitrogen. The best available technology can achieve about 75 percent reduction at

¹ Pennsylvania, Maryland, Virginia, Washington, D.C., the Chesapeake Bay Commission, and EPA signed the agreement. In a separate six-state memorandum of understanding with EPA, New York, Delaware, and West Virginia also made the same commitment.

² Visit <http://www.deq.virginia.gov/tmdl/baywip.html> for more information about the WIP.

an estimated cost of \$15,000 to \$25,000 per system. The proposed regulations require a 50 percent reduction for alternative onsite sewage systems installed in the Chesapeake Bay watershed (not conventional systems). VDH estimates that this requirement will cost \$2.00 to \$10.00 per gallon, or about \$900 to \$4,500 per single family dwelling.

The limits proposed by the regulations will not reduce nitrogen in sufficient quantities to meet the anticipated WIP and TMDL as calculated through EPA's modeling of pollution from the onsite sewage system source sector. The proposed nitrogen reductions only slow the rate of nutrient impacts from onsite sewage systems. Current versions of the WIP propose an expansion of the nutrient credit exchange program to include offsets from the onsite sewage system sector. By slowing the rate of increase in nitrogen from onsite sewage systems, the proposed regulations may reduce the amount of credits that would have to be purchased.

In 2004, the State Water Control Board, Department of Environmental Quality (DEQ) proposed regulations to reduce nutrient and sediment pollution to the Chesapeake Bay watershed from point source discharges (9 VAC25-40—Policy for Nutrient Enriched Waters; and 9 VAC25-720—Water Quality Management Regulation). DPB cited numerous studies and information about the economic benefits of reducing nutrient and sediment pollution in its review of these regulations, which can be viewed at http://www.townhall.state.va.us/L/GetFile.cfm?File=E:\townhall\docroot\103\1389\2911\EIA_DEQ_2911_v2.pdf). DEQ's response can be viewed at the following link: http://www.townhall.state.va.us/L/GetFile.cfm?File=E:\townhall\docroot\103\1389\2911\EIARes_DEQ_2911_v1.pdf. DPB reported insufficient data to adequately compare benefits and costs for the proposed regulations. VDH believes the economic benefits and studies used in DPB's analysis from 2004 for point source nutrient reductions could also be used as a reference for the proposed regulations, which address a non-point source.

The nitrogen reductions proposed by this regulation should be considered as part of the Commonwealth's overall strategy to meet the WIP and TMDL. While VDH is not aware of any specific study or analysis comparing the costs for pounds of nitrogen removed from each source sector, economies of scale would dictate that the cost to remove each pound of nitrogen from other source sectors, such as wastewater treatment plants, would deliver more nitrogen removal per dollar of cost. Presently, each single family home is expected on average to deliver about 9.8 lbs per year of nitrogen to the Chesapeake Bay according to the EPA model. The cost for a 50 percent reduction in pounds of nitrogen (4.9 lbs/year) is expected to be about \$900 to \$4,500 per single family home. The cost per pound of nitrogen removed from other source sectors with bigger economies of scale would be expected to cost significantly less on a relative basis.

To achieve an overall reduction in nitrogen within the onsite sewage system source sector and account for growth, some number of existing systems would need to be retrofitted with nitrogen-reducing technologies. The proposed regulations do not affect 85 to 90 percent of the onsite sewage systems in the Chesapeake Bay watershed. If overall nutrient reductions cannot be achieved within the onsite sewage system sector, then offsets would have to be obtained from another source sector or sectors. At present

there are not mechanisms in place that would allow individual homeowners to trade nutrient credits, nor is there any source of funding to assist owners in installing nitrogen-reducing technologies. Regardless of any future strategy employed, obtaining an overall reduction in nitrogen from onsite sewage systems based on EPA's current model will be difficult and expensive. Significant statutory and regulatory changes as well as changes in funding options for onsite sewage systems would have to be proposed.

VDH's current approach to controlling nitrogen, given its present authority, focuses on requiring nitrogen reduction for large alternative (cluster) systems; encouraging design practices that favor nitrogen reduction for small systems; requiring operation, maintenance and inspection of all alternative system; and, increasing the accuracy of the database to account for the voluntary uses of nitrogen-reducing technologies.